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Schizophrenia is a chronic psychiatric disorder that afflicts approximately 1% of the population. A particularly debilitating symptom of schizophrenia manifests as cognitive deficits, which contribute to struggles in everyday functioning; however the neural mechanisms underlying these deficits remain unclear. Past research suggests cognitive impairment may be associated with abnormalities in prefrontal brain structure such as reduced grey matter volume, while a separate line of research has implicated abnormal functional connectivity of the frontoparietal network (FPN). Importantly, the association between structural and functional abnormalities, and their relationships with cognition, have not yet been explored. In this study, we analyzed data from193 healthy controls and 146 schizophrenia participants. We assessed group differences in grey matter volume and resting-state functional connectivity of frontal nodes within the FPN. We predicted reduced volume and connectivity in schizophrenia participants compared to controls. Furthermore, we studied the relationship between grey matter volume and functional connectivity of regions within the FPN, and predicted that reduced grey matter volume of these regions would correlate with reduced functional connectivity. Finally, we assessed the relevance of these brain measures to cognitive ability. Contrary to our hypotheses, we found that grey matter volume and functional connectivity of our regions of interest were not significantly different between diagnostic groups. However, functional connectivity of two nodes within the frontal gyrus were significantly associated with grey matter volume of the inferior, orbital, and medial frontal gyri, though this relationship did not differ significantly by diagnostic group. Finally, FPN functional connectivity did not predict cognitive performance on tasks. These data suggest that in schizophrenia, grey matter volume of the prefrontal cortex does not relate to the functional connectivity of FPN nodes in this region, and furthermore that the communication of these FPN nodes does not account for the global cognitive deficits observed with schizophrenia.